An Interdisciplinary Analysis of Multispectral Satellite Data for Selected Cover Types in the Colorado Mountains, Using Automatic Data Processing Techniques

EREP S 398

Monthly Progress Report for July, 1974

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Principal Investigations Management Office
Lyndon B. Johnson Space Center

Technical Monitor: Dr. Rigdon Joosten
Principal Investigations
Management Office
Johnson Space Center
Houston, TX 77058

Principal Investigator: Dr. Roger M. Hoffer

Laboratory for Applications
of Remote Sensing

Purdue University
West Lafayette, IN 47906

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A. Overall Status and Progress to Date

The EREP Principal Investigators Conference that was held at Houston, Texas on July 15 to July 18, 1974 was attended by four LARS personnel including R. M. Hoffer and S. G. Luther who represented this contract. During free periods of the conference, the proposal for extending the current contract was discussed by the technical monitor, Dr. Joosten and Dr. Hoffer and S. G. Luther. The major changes to be made in the contract that differed from the proposal submitted were understood to be the deletion of the Geomorphological section of the proposal and reducing the CPU hours from 100 to 50, with the understanding that if additional CPU time was required a request could be submitted at a later date. These two major changes, along with several other minor cutbacks in the budget, reduced the amount of funds required from $131,000 to $82,500. Dr. Joosten indicated that he would summarize the conclusions of the discussion into a format acceptable by the contracts office at Houston. The contracts office at Houston would then contact the Office of Contract Administration at Purdue to work out the details of the contract extension.

Dr. Hoffer also spent two days in Boulder after the meeting in Houston discussing the INSTAAR activities on the SKYLAB project. INSTAAR is preparing a final report on their subcontract. This will then be incorporated by LARS into an interim report to NASA which will summarize the first years' effort on the SKYLAB contract.

Small scale mapping with the Mission 247 photography of structures surrounding the Silverton, Colorado area has been completed. Results of this mapping project are being transferred to be used as an overlay of the 1:250,000 Durango, Colorado topographic map. A small portion of the MSS data is being used to generate a computer classification. Preprocessing of the data has been performed in an effort to reduce the effects of topography and to enhance areas of alteration. The preprocessing consists of a digital ratioing technique using selected MSS channels and expanding the resultant ratios to fully utilize the available data range. The ratios generated were: 4:6,

4:8, 4:10, 6:8, 6:10, 8:10, 3:17, and 17:22. The spectral data of the rock samples taken from the Silverton area taken previously with the EXOTECH spectrometer have been digitized and reformatted and are now ready for analysis.

B. Recommendations

The filtered SL-2 S-192 data should be sent to LARS as soon as possible withoutcorrecting for 3.15 degree drift. This data will be used for studying the spectral response of snow and clouds, and at this time, is not intended to be used for mapping purposes. The SL-3 S-192 data, however, should be corrected for this drift angle as it will be used for geological and forest cover type mapping. Appreciable amounts of distortion in the cartographic characteristics of the data will cause difficulties in determining the necessary training and test fields.

C. Expected Accomplishments

A computer-aided classification of Mission 247 MSS data should be completed by end of next month. To aid in this classification procedure, two false color images of the preprocessed Mission 247 MSS data will be produced. Study of the SL-2 and SL-3 S-190A color IR photography should be completed and in the process of documentation.

C. Significant Results

There are no author-identified significant results contained in this report.

E. Summary Outlook

Current funds have been nearly exhausted and it is therefore essential that a cost extension be negotiated as soon as possible.

F. Travel Summary

R. M. Hoffer and S. G. Luther were at NASA/JSC to attend the EREP Principal Investigator's Conference from July 15 to July 18, 1974. Dr. Hoffer then flew to Denver, Colorado to meet with INSTAAR personnel from July 19-21, 1974.